# Science Flight Report Operation IceBridge Arctic 2012

Flight: F28

Mission: Helheim-Kangerdlugssuaq Gap 02



# Flight Report Summary

Aircraft	P-3B (N426NA)				
Flight Number	29				
Flight Request	12P006				
Date	Monday, April 23, 2012 (Z)				
Purpose of Flight	Operation IceBridge Mission Helheim-Kangerdlugssuaq Gap 02				
Take off time	10:19 Zulu from Kangerlussuaq (BGSF)				
Landing time	17:55 Zulu at Kangerlussuaq (BGSF)				
Flight Hours	7.7 hours				
Aircraft Status	Airworthy.				
Sensor Status	All installed sensors operational.				
Significant Issues	None.				
Accomplishments	<ul> <li>Low-altitude survey (1,500) of glaciers and ice sheet profiles.</li> <li>ATM, snow, Ku-band, accumulation radar, MCoRDS gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines.</li> <li>Pitch and roll maneuvers for snow and Ku-band radar.</li> <li>No ramp pass due to weather.</li> </ul>				
Geographic Keywords	Helheim Glacier, Kangerdlugssuaq Glacier				
Satellite Tracks	None				
Repeat Mission	2010				

## **Science Data Report Summary**

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey	Entire	High-alt.		
	Area	Flight	Transit		
ATM	$\overline{\checkmark}$	X	×	76 GB	LTN 100 outage on T4
MCoRDS	×	X	×	1.9 TB	None
Snow Radar	$\overline{\checkmark}$	X	×	750 GB	None
Ku-band Radar	$\overline{\checkmark}$	X	×	750 GB	None
Accumulation Radar	$\overline{\checkmark}$	X	×	190 GB	None
DMS	$\overline{\checkmark}$	X	×	107 GB	None
KT-19 Skin Temp.	$\overline{\checkmark}$		$\checkmark$	10 MB	None
Gravimeter	$\overline{\checkmark}$		$\checkmark$	1.5 GB	None
Magnetometer	$\overline{\checkmark}$		$\checkmark$	560 MB	None

### **Mission Report (Michael Studinger, Mission Scientist)**

This is a new mission, designed primarily to map the bedrock of the ice sheet in the space between Helheim and Kangerdlugssuaq Glaciers. The grid is spaced at approximately 10 km, and it conforms to the 2010 LVIS grid flown here in that one of these lines is designed to repeat the 2010 lines, for dh/dt purposes. This mission is designed to complement the Helheim-Kangerdlugssuaq Gap 01 mission by continuing that grid an the upslope direction. We also fly the centerline of two glaciers in the area (names unknown) for the first time. We transit to and from the area along central Greenland master grid lines.

The weather was perfect today.

#### Individual instrument reports from experimenters on board the aircraft:

**ATM:** Both ATM systems worked well and collected good data along the entire line in cloud free conditions. ATM collected a total of 7.1 hours of science data with 100% coverage. The computer that logs the LT-100 data on the T4 system had an outage. The Applanix 610 data will be used instead.

**MCoRDS:** The MCoRDS system worked well.

**Snow and Ku-band radar:** The snow and Ku-band radars worked well on the primary system.

Accumulation radar: Worked well today.

Gravimeter: Worked well.

Magnetometer: Worked well and used the SGL data logger today without problems.

**DMS:** DMS worked well and collected 19170 frames. **KT-19 skin temperature sensor:** System worked well.

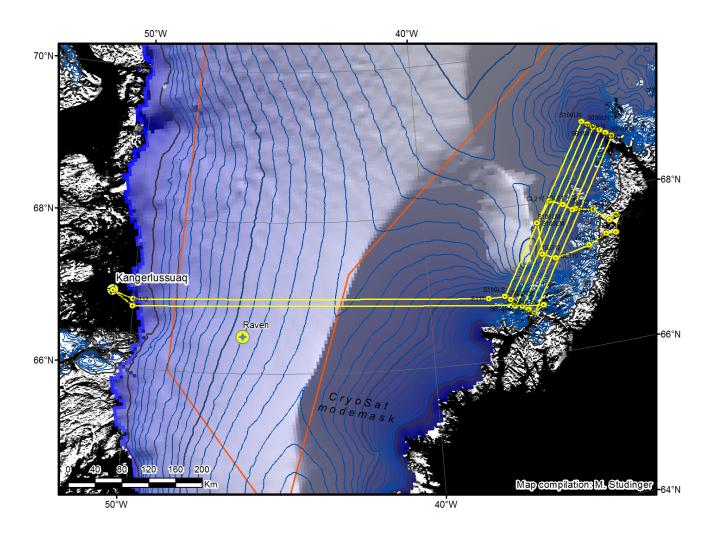


Figure 1: Today's mission plan (yellow).

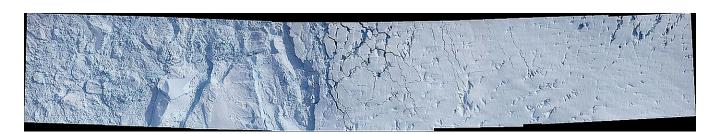


Figure 2: DMS mosaic of a calving front. DMS/James Jacobson.